

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

WELLS COUNTY

PROJECT NO. EX_SEAL

PCN

PROJECT LOCATION: US 52, FROM JCT ND 15 TO JCT ND 200

PROJECT DESCRIPTION: SEAL COAT

GOVERNING SPECIFICATION:

Standard Specifications adopted by the North Dakota Department of Transportation October 2002; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of North Dakota.

APPROVED DATE:

District DISTRICT ENGINEER
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNER

APPROVED DATE: _____

DIRECTOR, OFFICE OF PROJECT DEVELOPMENT

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LIST OF STANDARD DRAWINGS

D-704-3	Lane Markers for Seal Jobs Only
D-704-7, 8	Breakaway System for Construction Zone Signs
D-704-9,10,11,12	Construction Sign Details
D-704-13	Barricade Details
D-704-14	Construction Sign and Barricade Assembly Details
D-704-15,20,22	Construction Sign and Barricade Location Details
D-704-27	Traffic Control Plan Moving Operations Conventional Highways
D-762-1	Pavement Marking Message Details
D-762-3	Striping for Flared Intersections
D-762-4	Pavement Marking
D-762-6	Short Term Pavement Marking

Standard Drawings are not included in the plans, but can be obtained at the District Offices or the Central Office of the North Dakota Department of Transportation.

ESTIMATED QUANTITIES

Item No.	Spec No.	Code No.	Description	Units	Estimated Quantity
1	103	0100	CONTRACT BOND	L SUM	1
2	107	0100	RAILROAD PROTECTION INSURANCE	L SUM	1
3	420	0112	HFMS2 EMULSIFIED ASPHALT	GAL	107,872
4	420	0140	COVER COAT MATERIAL CL 42	TON	2,603
5	702	0100	MOBILIZATION	L SUM	1
6	704	0100	FLAGGING	MHR	300
7	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,990
8	704	1185	PILOT CAR	HR	100
9	762	0128	PLASTIC PVMT MK FILM-MESSAGE	SF	274
10	762	0460	SHORT TERM PAINTED LINE-SEAL JOBS	LF	30,420
11	762	1104	PVMT MK PAINTED 4IN LINE	LF	173,295

PLAN NOTES

107- P01 RAILROAD CROSSING: The Soo Line Railroad crosses U.S. 52 at Sta 612+98.5.

704-P01 TRAFFIC CONTROL FOR SEAL COATS: Traffic control for the seal coat shall consist of a temporary road closure, flagging, and a pilot car. Traffic Control Devices shall comply with the following Standard Drawings:

- 1) Standard D-704-15, layout A: For temporary roadway closures just beyond the daily work areas during seal coat operations (assumed 4 Type A layouts and 2 intermediate flagging stations). Intermediate flagging stations will require signs W20-7a-48 only.
- 2) Standard D-704-20, layout H: For construction signing during seal coat operations. The ADT is greater than 750, therefore sign no. W8-12-48 "No Center Stripe" will not be required. Signing will be required at junctions: ND 15 and ND 200.
- 3) Standard D-704-22, layouts K and L: For trucks hauling material.
- 4) Standard Drawings D-704-7, 8, 9, 10, 11, 12, 13, and 14 are applicable.
- 5) Standard D-704-03, Lane Markers for Seal Jobs (Spotting Tabs).

Quantities have been developed based on a 13.2 mile limitation for the paving operations. The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the Contract Unit Price for each device. Additional devices required to accommodate the Contractor's operation shall be the Contractor's responsibility.

762-P01 PLASTIC PAVEMENT MARKING FILM MESSAGE: Plastic pavement marking film shall be installed a minimum of two weeks prior to the seal coat installation.

Areas to receive pavement marking film shall have all the in-place pavement markings removed as specified by the manufacturer of the plastic pavement marking film.

Just prior to beginning the seal coat installation, adhesive-coated paper liner shall be placed on the plastic marking to protect it from seal oil and chips. The paper liner shall be as recommended by the plastic markings manufacturer. Spotting tabs shall be placed at the beginning of each paper liner to provide for location of the paper liner. The paper liner shall be placed to the length of that day's seal run. Upon completion of that day's seal run, all paper liners shall be removed. The paper liner and the seal coat removed shall be loaded and disposed of outside the highway right of way.

The cost of placing tabs, paper liners, removal, and disposal shall be included in the price bid for "Plastic Pavement Marking Film Message".

- 762-P02 PAVEMENT MARKING: Pavement markings will not be measured for payment unless changes are made in the field. Payment for pavement markings will be at plan quantity.
- 762-P03 PAVEMENT MARKING EDGE LINES: Edge lines shall be continued through private drives and broken for intersections.

BASIS OF ESTIMATE

List of Special Provisions: None
 Scope of Work: U.S. 52 from junction ND 15 to junction ND 200
 Exceptions: None
 ADT: Total = 1050, Passenger = 757, Truck = 293

Seal Coat Locations:*				
Typical Section	Begin Mile Point	End Mile Point	Length (Miles)	Description
1	185.548	198.717	13.169	
			Miles Gross	13.169
			Miles Net	13.169

* Intersections and approaches will not be sealed except as shown.

- 1) Location: Mile Point 185.548 to 198.717
 Description: 26 ft width seal and cover coat, (2) 8 ft shoulder seals

Design Calculations:			
<u>Surfacing Quantities:</u>	Unit	Width	Unit/Mile
HFMS-2 Emulsified Asphalt @ 0.40 gal/sy (Driving Lanes)	GAL	26'	6101
Cover Coat Material CI 42 @ 25 lbs/cy	TON	26'	191
HFMS-2 Emulsified Asphalt @ 0.20 gal/sy (Shoulder)	GAL	2 @ 8'	1877
Additional Surfacing Quantities: - Intersection Sta 951+45.5 (Hwy 15) - Intersection Taper Sta 960+39.4 - 2 Flared Intersection Sta 977+00 Lt - Flared Intersection Type B Sta 697+66.5 (Hwy 200)		HFMS-2 (GAL) 1660 578 250 322	CI 42 (TON) 52 18 8 10
<u>Pavement Marking Quantities:</u>	Unit	Unit/Location	Unit/Mile
Short Term Painted line - Seal Jobs 4" yellow center lines, 10" lines, 30' skip 4" yellow barrier line	LF LF		1320 990
Plastic Pavement Marking Film Message Railroad cross and RR's, 3 bands (2) Crosses and (4) R's (6) Bands		130 144	
Pavement Marking Painted Line 4" yellow center lines, 10" lines, 30' skip 4" yellow barrier line - Railroad crossing 4" white edge line - Intersection Sta 951+45.5 (Hwy 15) - Intersection Taper Sta 960+39.4 - 2 Flared Intersection Sta 977+00 Lt - Flared Intersection Type B Sta 697+66.5 (Hwy 200)	LF LF LF LF LF LF LF LF	1240 740 900 310 620	1320 990 10560

TRAFFIC CONTROL DEVICES LIST

Sign Number	Sign Size	Description	Quantity Required	Units Per Sign	Units Sub Total
D3-36	36"x 6"	STREET NAME SIGN (SIGN AND INSTALLATION ONLY)		6	0
G20-1a-60	60"x 24"	ROAD WORK NEXT ___ MILES		34	0
G20-1b-60	60"x 24"	WORK IN PROGRESS / NO WORK IN PROGRESS		26	0
G20-2a-48	48"x 24"	END ROAD WORK		19	38
G20-4-36	36"x 18"	PILOT CAR FOLLOW ME	1	18	18
G20-50a-72	72"x 36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS		37	0
G20-52a-72	72"x 24"	ROAD WORK NEXT ___ MILES RT or LT ARROW		30	0
G20-55-96	96"x 48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT		59	0
M1-1-36	36"x 36"	ROUTE MARKER (POST AND INSTALLATION ONLY)		10	0
M1-4-24	24"x 24"	ROUTE MARKER (POST AND INSTALLATION ONLY)		10	0
M1-5-24	24"x 24"	ROUTE MARKER (POST AND INSTALLATION ONLY)		10	0
M3-1-24	24"x 12"	NORTH (MOUNTED ON ROUTE MARKER POST)		7	0

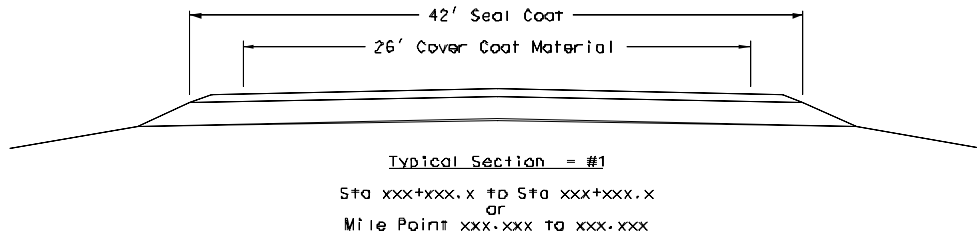
TRAFFIC CONTROL DEVICES LIST					
Sign Number	Sign Size	Description	Quantity Required	Units Per Sign	Units Sub Total
M3-2-24	24"x 12"	EAST (MOUNTED ON ROUTE MARKER POST)		6 7	0
M3-3-24	24"x 12"	SOUTH (MOUNTED ON ROUTE MARKER POST)		6 7	0
M3-4-24	24"x 12"	WEST (MOUNTED ON ROUTE MARKER POST)		6 7	0
M4-8-24	24"x 12"	DETOUR (MOUNTED ON ROUTE MARKER POST)		6 7	0
M4-9-30	30"x 24"	DETOUR ARROW RIGHT or LEFT / AHD AND RT or LT		15	0
M4-10-48	48"x 18"	DETOUR ARROW RIGHT or LEFT		23	0
M5-1-21	21"x 15"	ARROW AHD AND RT or LT (MTD ON ROUTE MKR POST)		6 7	0
M5-2-21	21"x 15"	ARROW AHD UP & RT or LT (MOUNTED ON ROUTE MKR POST)		7	0
M6-1-21	21"x 15"	ARROW RT or LT (MOUNTED ON ROUTE MARKER POST)		6 7	0
M6-2-21	21"x 15"	ARROW UP & RT or LT (MOUNTED ON ROUTE MARKER POST)		7	0
M6-3-21	21"x 15"	ARROW AHD (MOUNTED ON ROUTE MARKER POST)		8	0
R1-1-30	30"x 30"	STOP	4	16	64
R1-1-48	48"x 48"	STOP		32	32
R1-1a-18	18"x 18"	STOP and SLOW PADDLE Back to Back	4	5	20
R1-2-48 60	60"x 60"	YIELD		29	0
R2-1-48	48"x 60"	SPEED LIMIT ____	10	39	390
R2-1a-24	24"x 18"	MINIMUM FEE \$40 80 (MOUNTED ON SPEED LIMIT POST)	7	10	70
R2-5a-48	48"x 60"	REDUCED SPEED AHEAD		39	0
R3-7-48	48"x 48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	0
R4-1-48	48"x 60"	DO NOT PASS	7	39	273
R4-7-48	48"x 60"	KEEP RIGHT SYMBOL		39	0
R5-1-48	48"x 48"	DO NOT ENTER		35	0
R6-1-36	36"x 12"	ONE WAY RIGHT or LEFT		13	0
R7-1-12	12"x 18"	NO PARKING		11	0
R10-6-24	24"x 36"	STOP HERE ON RED		16	0
R11-2-48	48"x 30"	ROAD CLOSED		28	0
R11-2a-48	48"x 30"	STREET CLOSED		28	0
R11-3a-60	60"x 30"	ROAD CLOSED ____ MILES AHEAD LOCAL TRAFFIC ONLY		31	0
R11-3c-60	60"x 30"	STREET CLOSED ____ MILES AHEAD LOCAL TRAFFIC ONLY		31	0
R11-4a-60	60"x 30"	STREET CLOSED TO THRU TRAFFIC		31	0
W1-3-48	48"x 48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	0
W1-4-48	48"x 48"	RIGHT or LEFT REVERSE CURVE ARROW		35	0
W1-4b-48	48"x 48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	0
W1-6-48	48"x 24"	LARGE ARROW		26	0
W3-1a-48	48"x 48"	STOP AHEAD SYMBOL		35	0
W3-3-48	48"x 48"	SIGNAL AHEAD SYMBOL		35	0
W4-2-48	48"x 48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	0
W5-1-48	48"x 48"	ROAD NARROWS		35	0
W5-8-48	48"x 48"	THRU TRAFFIC RIGHT LANE		35	0
W5-9-48	48"x 48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	0
W6-3-48	48"x 48"	TWO WAY TRAFFIC SYMBOL		35	0
W8-1-48	48"x 48"	BUMP		35	0
W8-3a-48	48"x 48"	PAVEMENT ENDS		35	0
W8-7-48	48"x 48"	LOOSE GRAVEL		35	0
W8-9a-48	48"x 48"	SHOULDER DROP-OFF		35	0
W8-11-48	48"x 48"	UNEVEN LANES		35	0
W8-12-48	48"x 48"	NO CENTER STRIPE		35	0
W8-53-48	48"x 48"	TRUCKS ENTERING HIGHWAY		35	0
W8-54-48	48"x 48"	TRUCKS ENTERING AHEAD or ____ FT	2	35	70
W8-55-48	48"x 48"	TRUCKS CROSSING AHEAD or ____ FT	2	35	70
W8-56-48	48"x 48"	TRUCKS EXITING HIGHWAY		35	0
W9-3a-48	48"x 48"	CENTER LANE CLOSED SYMBOL		35	0
W12-2-48	48"x 48"	LOW CLEARANCE SYMBOL		35	0

TRAFFIC CONTROL DEVICES LIST					
Sign Number	Sign Size	Description	Quantity Required	Units Per Sign	Units Sub Total
W13-1-24	24"x 24"	___ MPH ADVISORY SPEED PLATE (MOUNTED ON WARNING SIGN POST)		11	0
W13-4-48	48"x 60"	RAMP ARROW		39	0
W14-3-6448	48"x 36"	NO PASSING ZONE		23	0
W20-1-48	48"x 48"	ROAD WORK AHEAD or ___ FT or ___ MILE	4	35	140
W20-2-48	48"x 48"	DETOUR AHEAD or ___ FT		35	0
W20-3-48	48"x 48"	ROAD or STREET CLOSED AHEAD or ___ FT		35	0
W20-4-48	48"x 48"	ONE LANE ROAD AHEAD or ___ FT		35	0
W20-5-48	48"x 48"	RIGHT or LEFT LANE CLOSED AHEAD or ___ FT		35	0
W20-7a-48	48"x 48"	FLAGGING SYMBOL	6	35	210
W20-7b-48	48"x 48"	BE PREPARED TO STOP	4	35	140
W20-7k-24	24"x 18"	___ FEET (MOUNTED ON WARNING SIGN POST)		10	0
W20-8-48	48"x 48"	STREET CLOSED		35	0
W20-51-48	48"x 48"	EQUIPMENT WORKING		35	0
W20-52-54	54"x 12"	NEXT ___ MILES (MOUNTED ON WARNING SIGN POST)	11	12	132
W21-1a-48	48"x 48"	MEN WORKING SYMBOL		35	0
W21-2-48	48"x 48"	FRESH OIL		35	0
W21-3-48	48"x 48"	ROAD MACHINERY AHEAD or ___ FT		35	0
W21-5-48	48"x 48"	SHOULDER WORK		35	0
W21-5a-48	48"x 48"	RIGHT SHOULDER CLOSED		35	0
W21-5b-48	48"x 48"	RIGHT SHOULDER CLOSED AHEAD or ___ FT		35	0
W21-6a-48	48"x 48"	SURVEY CREW AHEAD		35	0
W21-50-48	48"x 48"	BRIDGE PAINTING AHEAD or ___ FT		35	0
W21-51-48	48"x 48"	MATERIAL ON ROADWAY		35	0
W22-8-48	48"x 48"	FRESH OIL LOOSE ROCK	12	35	420
	24"x 24"	TAKE TURNS (6" D letters) (MOUNTED ON STOP SIGN POST)		11	0
		SPECIAL SIGN - NO. 1			0
		Total Units:			2017
Pay Item Description			Unit	Spec & Code	Quantity
TRAFFIC CONTROL SIGNS			UNIT	704-1000	2017
FLAGGING			MHR	704-0100	
ATTENUATION DEVICE - TYPE B-55			EACH	704-1041	
ATTENUATION DEVICE - TYPE B-65			EACH	704-1043	
ATTENUATION DEVICE - TYPE B-70			EACH	704-1044	
TYPE I BARRICADES			EACH	704-1050	
TYPE II BARRICADES			EACH	704-1051	
TYPE III BARRICADES			EACH	704-1052	
DELINEATOR DRUMS			EACH	704-1060	
TRAFFIC CONES			EACH	704-1065	
TUBULAR MARKERS			EACH	704-1067	
DELINEATOR			EACH	704-1070	
FLEXIBLE DELINEATORS			EACH	704-1072	
VERTICAL PANELS - BACK TO BACK			EACH	704-1081	
SEQUENCING ARROW PANEL - TYPE A			EACH	704-1085	
SEQUENCING ARROW PANEL - TYPE B			EACH	704-1086	
SEQUENCING ARROW PANEL - TYPE C			EACH	704-1087	
SEQUENCING ARROW PANEL - TYPE C - CROSSOVER			EACH	704-1088	
TYPE B FLASHERS			EACH	704-1095	
PORTABLE PRECAST CONCRETE MED BARRIER			EACH	704-3501	
PRECAST CONCRETE MED BARRIER - STATE FURNISHED					

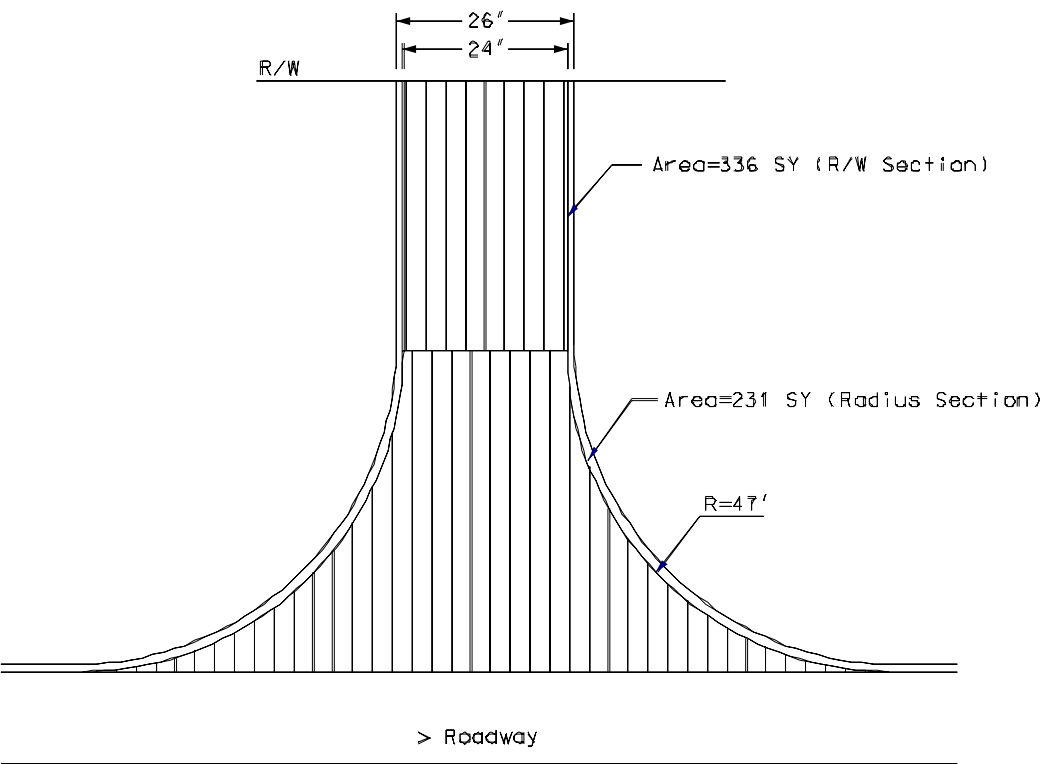
Pay Item Description	Unit	Spec & Code	Quantity
RAISED PAVEMENT MARKERS	EACH	704-3510	
SHORT TERM 4IN LINE - TYPE R	EACH	762-0200	
SHORT TERM 4IN LINE - TYPE NR	LF	762-0420	
SHORT TERM 4IN LINE - TYPE NR	LF	762-0430	
OBLITERATION OF PVMT MRK	SF	762-1500	
FLASHING BEACON - POST MOUNTED	EACH	772-2110	

DETAIL DRAWINGS

Example Drawing:

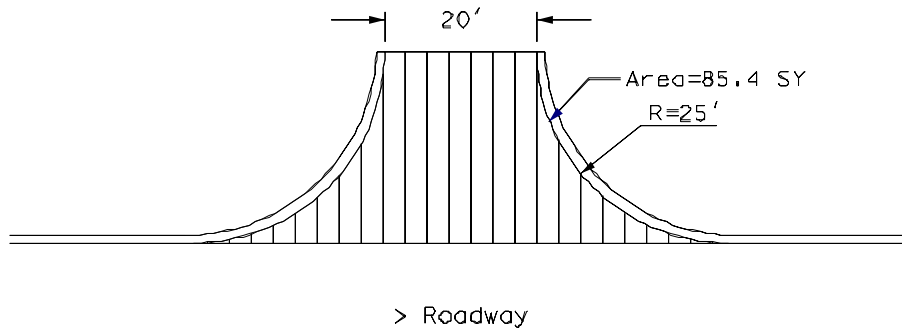


<u>Basis of Estimate</u>			
Description	Unit	Width	Unit/Mile
HFMS-2 for Seal Coat @ 0.40 Gal/SY	GAL	26'	6101
Cover Coat Material, C# 42 @ 25 Lbs/SY	TON	26'	191
HFMS-2 for Seal Coat @ 0.20 Gal/SY (Shoulders)	GAL	200'	1877



Section Line Approach
Various locations 4 EA

Basis of Estimate			
Description	Unit	R/W Section	Radius Section
HFMS-2 for Seal Coat @ 0.40 Gal/SY	GAL	134 EA	92 EA
Cover Coat Material, CI 42 @ 25 Lbs/SY	TON	4.2 EA	2.9 EA



Private Drive Approach

Various Locations 4 EA

Basis of Estimate

Description	Unit	Private Drive
HFMS-2 for Seal Coat @ 0.40 Gal/SY	GAL	34 EA
Cover Coat Material, CI 42 @ 25 Lbs/SY	TON	1 EA

ENGINEERS ESTIMATE

EX_SEAL

U.S. 52 FROM JCT ND 15 TO JCT ND 200

SEAL COAT

Bid Opening: 01/17/1997

Prepared By: MSG Date: mm/dd/yyyy

Revised: mm/dd/yyyy

Item No.	Spec No.	Code No.	Description	Units	Estimated Quantity	Unit Cost	Total Cost
1	103	0100	CONTRACT BOND	L SUM	1	\$2,325.00	\$2,325.00
2	107	0100	RAILROAD PROTECTION INSURANCE	L SUM	1	1,500.00	1,500.00
3	420	0112	HFMS2 EMULSIFIED ASPHALT	GAL	107,872	0.67	72,274.24
4	420	0140	COVER COAT MATERIAL CL 42	TON	2,603	13.00	33,839.00
5	702	0100	MOBILIZATION	L SUM	1	30,400.00	30,400.00
6	704	0100	FLAGGING	MHR	300	15.00	4,500.00
7	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,990	3.00	5,970.00
8	704	1185	PILOT CAR	HR	100	20.00	2,000.00
9	762	0128	PLASTIC PVMT MK FILM-MESSAGE	SF	274	7.70	2,109.80
10	762	0460	SHORT TERM PAINTED LINE-SEAL JOBS	LF	30,420	0.08	2,433.60
11	762	1104	PVMT MK PAINTED 4IN LINE	LF	173,295	0.04	6,931.80
						Sub Total	\$164,283.44
						10% Eng. Cost	\$16,428.34
						Total	\$180,711.80